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A Study On Revamping Of Emergency Department At Srm Hospital, Kattankulathur

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Abstract

Most active department in a hospital is the emergency department. Emergency department should be organized most effectively and efficiently. The need of the study is to analyze the current practice and to eliminate waste in the process flow and apply the process improvement tools which would facilitate to put an efficient process in location, human resources, infrastructure and protocols.

Statement of problem: - The emergency department plays an important role in the hospital since the patients who comes to the emergency department are most vulnerable. Patient flow to the department is more in emergency when compared to other department.

The service provided to the patients should be more effective because most of the patients need critical care and most of the patients will be in their golden hour.

Research Design: - This research is a descriptive research. Descriptive investigation is used to describe characteristics of a population or phenomenon being considered. Here questionnaires are given to the staff in the emergency department.

Sample Size: - For the research 80 staff from the emergency department are taken.

Scaling technique: - The scaling technique used in this research is the noncomparative scaling. Itemized rating scale is used in which the odd/even scale is used.

Keywords: Emergency department, Hospital, Patients.

Introduction

Emergency care in the hospital is mainly given for the disaster both man made and natural disaster, and the people who gets sick due to major diseases like heart attack, stroke etc.,

But when there is no patient in the emergency department even the patient who is not urgent in nature can be admitted that is majorly taking place during the night time service. The emergency department location:

- Has to be in the ground floor, easily accessible,
- It has to be near the admission counter, radiology department, blood bank and even pharmacy.

DESIGN:

- The entrance has to be large enough to accommodate two ambulances,
- The door of the ER ward has to be large enough so that two stretches have to be taken in to the ward,
- All facilities have to be inside the ward including utility supply, medicine and other treatment modalities has to be accomplished well in the ward.

DEPARTMENT OPERATIONS:

Triage is normally the early stage the patient passes through, and consists of a concise assessment, including a set of vital hints, and the assignment of a "chief complaint" (i.e. chest pain, abdominal pain, difficulty breathing, etc.). Most emergency branches have a committed area for this process to take place, and may have team committed to performing zero but a triage role. Most patients will be initially checked at triage and then moved to a distinct space of the department, or another area of the clinic or a hospital, with their waiting time determined by their clinical need. However, few patients may complete their treatment at the triage (early) stage, for example if the condition is very minimal and can be treated quickly, if only advice is required, or if the emergency department is not a suited point of stress for the patient. Contrarily, patients with evidently severe conditions, such as cardiac arrest, will omit triage altogether and move straight to the appropriate part of the department. Patients whose condition is not urgently life threatening will be sent to an area applicable to deal with them and these areas might typically be termed as a prompt or efficient care or minor's area. http://en.wikipedia.org/wiki/Emergency_department - cite_note-24

OBJECTIVES

- To find the constrains which are affecting the emergency department.
- To evaluate the services rendered in the emergency department.
- To analyze the efficiency and effectiveness of the protocols and process flow in the emergency department.
- To study and evaluate the accessibility, human resources and infrastructure of the emergency department.

RESEARCH METHODOLOGY

The data is collected through questionnaires and through observation. The data is also got by interacting with the staff and patients in the hospital.

A. Sampling Techniques

The sampling technique used here is the probability method.

From the probability method the simple random sampling method is chosen.

B. Statistical Tools

- Weighted Average
- Chi square
- Correlation
- SWOT analysis

C. Hypothesis

H0=There is no significant association between the training programs and intervention given to the patients

H1=There is significant association between the training programs and intervention given to the patients

The above hypothesis is solved by chi square.

LIMITATIONS

Although this research was carefully prepared, still there are certain limitations and shortcomings.

1) The researcher was not able to cover the patients since they are in critical situation.

2) It was difficult for the collection of data from the doctors since they have a busy schedule.

REVIEW OF LITERATURE

1. Wake Forest (2013) said that the clinical research program of the Department of Emergency Medicine at Wake Forest University is a thriving endeavor that continues to grow. A research plan requires a dominant institutional and departmental commitment to provide researchers with the support and framework required to produce high quality results. Over the past few years or decades such a research program has been carefully done within the Department of Emergency Medicine at Wake Forest.

2. Jonathan S. Olshaker, Niels K. Rathlev (2012) stated that the Emergency Department (ED) gathering or overcrowding and ambulance departure have been flourishing, significant national problems for further than a decade. Analysis of hospital directors have announced

overcrowding in almost all state and 91% of hospital ED directors reported overcrowding as an issue. The issue has developed because of numerous factors in the past 20 years, including a constant downsizing in hospital scope, closures of a significant number of EDs, expanded ED volume, growing numbers of uninsured, and departed reimbursement for uncompensated care. Initial position statements from large organizations, including JCAHO and the General Accounting Office, proposed the problem of overcrowding was due to inappropriate practice of emergency services by those with no compelling conditions, probably cyclical, and needed no specific policy feedback. Recently, the same and alternative institutions have more forcefully highlighted the problem of overcrowding and concentrated on the inability to move emergency patients to inpatient beds as the single most vital factor contributing to ED overcrowding. This point has been promoted by early overcrowding research. This study shows how overcrowding occurred while concentrating on the implication and potential recommendations of admitted patients in the Emergency Department.

3. Barbara Benson (2011) stated that NYU Langone Medical Center is building up the square footage in its emergency department in an $80.8 million renewal. The extension was planned well before the termination of St. Vincent's Hospital.

In its operation to the state administration of Health requesting acceptance for the expansion, which the state permitted this summer, NYU Langone wrote that the current emergency department was “poorly constructed or designed, resulting in long interval times and inefficient usage of physical space.” It is calculated for 20,000 annual visits but had 41,000 visits in 2009.

NYU Langone depleted $191.4 million in 30-year, fixed-rate, tax-exempt bonds to pay for repairs, along with the emergency department revamp, building an extension clinic for its Musculoskeletal Center and normal capital consumptions.

While most of the financing for the new department is from the bond sale, donors granted the rest. They include John and Barbara Vogelstein the Peter Jay Sharp Foundation trustee Sidney Lapidus and Ruth Lapidus; trustee Thomas Murphy; and an anonymous gift of $1 million. To date, lead donors have pledged more for the expanded department.

4. David Walker (2009) said that Renovation works will start next week and are expected to take about 12 months. They will include design of a new short-stay ward so that some patients need not enter the emergency beds. The hospital's director of framework, David Walker, says the ward is managing about 14,000 more patients a year than it was built to take. The emergency department is under formidable strain at the moment," he said. "We need a study like this to calm the stress in the department and make sure that they can aid the people coming to ED [the emergency department] in a timely manner."

5. Kim Knowlton, Miriam Rotkin-Ellman (2006) said that Climate models design that toast swells will increase in frequence and inflexibility. Despite numerous studies of mortality from heat swells, many studies have examined morbidity.

In this study we delved whether any age or race/ race groups endured increased hospitalizations and exigency department (ED) visits overall or for named ails during the 2006 California heatwave.We aggregated county- position hospitalizations and ED visits for all causes and for 10 cause groups into six geographic regions of California. We calculated redundant morbidity and rate rates (RRs) during the heat surge (15 July to 1 August 2006) and compared these data with those of a reference period (8 – 14 July and 12 – 22 August 2006). During the heat surge, redundant ED visits and redundant hospitalizations passed statewide. ED visits for heat- related causes increased across the state (RR = 6.30; 95 confidence interval (CI), 5.67 – 7.01), especially in the Central Coast region, which includes San Francisco. Children (0 – 4 times of age) and the senior (≥ 65 times of age) were at topmost threat. ED visits also showed significant increases for acute renal failure, cardiovascular conditions, diabetes, electrolyte imbalance, and nephritis. We observed significantly elevated RRs for hospitalizations for heat- related ails (RR = 10.15; 95 CI, 7.79 – 13.43), acute renal failure, electrolyte imbalance, and nephritis.

6. Ula Hwang, LynneD. Richardson (2006) said that to estimate the effect of

exigency department (ED) crowding on assessment and treatment of pain in aged grown-ups. Retrospective review of ED records from a prospective cohort study. Urban, academically combined, tertiary medical center. One hundred fifty-eight cases, aged 50 and aged, estimated and rehabilitated from the ED with hipsterismfracture.Patient- related threat factors age, coitus, nursing home hearthstone, ED triage status, madness, Acute Physiology in Age and Chronic Health Evaluation II physiological score, and RAND comorbidity score. ED crowding threat factors ED tale and mean length of stay. Issues attestation of pain assessment, time to hurt assessment, time to hurt treatment, cases reporting pain entering analgesia, and meperidine use.

7. M Leonard, S Graham, D Bonacum (2004) Said that Effective communication and cooperation is essential for the delivery of high quality, safe case care. Communication failures are an extremely common cause of unintentional patient detriment. The complexity of medical care, coupled with the essential limitations of mortal performance, make it critically important that clinicians have standardised communication tools, produce an terrain in which individualities can speak up and express enterprises, and share common " critical language" to warn platoon members to unsafe situations. All too constantly, effective communication is situation or personality dependent. Other high trustability disciplines, similar as marketable aeronautics, have shown that the relinquishment of standardised tools and behaviours is a veritably effective strategy in enhancing cooperation and reducing threat. We describe our ongoing patient safety perpetration using this approach within Kaiser Permanente, anon-profit American healthcare system furnishing care for8.3 million cases. We describe specific clinical experience in the operation of surgical briefings, parcels of high trustability perinatal care, the value of critical event training and simulation, and benefits of a standardised communication process in the care of cases transferred from hospitals to professed nursing installations. Also, assignments learned as to effective ways in achieving artistic change, substantiation of perfecting the quality of the work terrain, practice transfer strategies, critical success factors, and the evolving styles of demonstrating the benefit of similar work are described.

8. Ruth Stalnikowicz, Riad Mahamid (2004) said that Evaluation and enhancement of pain operation in our exigency department (ED). This was a'before – after' study. For each subject, the nanny, the croaker, and the case were asked to rate the original intensity of the pain on a Visual Analogue Score (VAS). The timing and the type of anesthetics administered were also recorded and follow-up VAS was performed. A tutoring, community- grounded, 400- bed sanitarium.140 cases admitted for acute pain related to orthopedic injuries. The gap between the VAS expressed by the case and estimated by the staff, the proportion of cases entering anesthetics, and the length of time detainments between admission and analgesic administration. The intervention included education of medical and nursing staffs, insertion of a VAS template in the case's map, inauguration of routine VAS assessment andre-assessment, and perpetration of a protocol for pain operation with standing orders for nursers.

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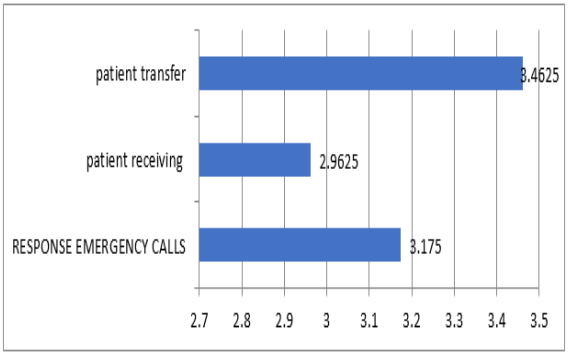
ANALYSIS AND INTERPRETATIONS

1. Analysis of the weighted average in the emergency department on the various responses for the ambulance services.

CHART: 1



CORRELATION

2. Analysis on the perception of staff ratio in the emergency department and the perception on the quality of staff

TABLE-1

Correlation	R value	Result
perception of doctors in the emergency department and the perception on the quality of doctors	0.797816	High positive correlation
perception of nurses ratio in the emergency department and the perception on the quality of nurses	0.750946	High positive correlation
perception of technician ratio in the emergency department and the perception on the quality of technician	0.682191	High positive correlation

CHI SQUARE TEST

3. Analysis on the response based on the training programs and intervention given to the patients

H0=There is no significant association between the training programs and intervention given to the patients

H1=There is significant association between the training programs and intervention given to the patients

Table 2: Chi square table

	once in 3 months	once in 6 months	once in a year	> one year	Total
Always	14	4	4	4	26
Very often	13	12	3	4	32
Sometimes	15	0	0	3	18
Rarely	0	2	0	0	2
Never	1	1	0	0	2
Total	43	19	7	11	80

Table 3: Solution table

O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
14	13.975	0.025	0.0006	4.293E+00
4	6.175	-2.175	4.730625	0.76609
4	2.275	1.725	2.975625	1.30797
4	3.575	0.425	0.180625	0.05052
13	17.2	-4.2	17.64	1.02558
12	7.6	4.4	19.36	2.54737
3	2.8	0.2	0.04	0.01429
4	4.4	-0.4	0.16	0.03636
15	9.675	5.325	28.355625	2.93081
0	4.275	-4.275	18.275625	4.27500
0	1.575	-1.575	2.480625	1.57500
3	2.475	0.525	0.275625	0.11136
0	1.075	-1.075	1.155625	1.07500
2	0.475	1.525	2.325625	4.89605
0	0.175	-0.175	0.030625	0.17500
0	0.275	-0.275	0.075625	0.27500
1	1.075	-0.075	0.005625	0.00523
1	0.475	0.525	0.275625	0.58026
0	0.175	-0.175	0.030625	0.17500
0	0.275	-0.275	0.075625	0.27500

Chi square = 26.38990973

Degree of freedom = 12

The table value of chi square 12 degree of freedom at 5 percent level = 21.026

CONCLUSION

Since the calculated value of chi square is greater than the table value of chi square, H0 is rejected.

INTERPRETATION

There is significant association between the training programs and intervention given to the patients.

SWOT ANALYSIS

STRENGTH	WEAKNESS
1. Accessible location 2. The brand name 3. Cost effective	1. Number of staffs working is less 2. Attrition level is more 3. Low advertising and marketing 4. Not enough training given to the
OPPURTUNITIES	**THREAT**
1. Marketing can be done to improve the brand name 2. Camps can be organized 3. Advertisements can be made on the facilities available 4. Infrastructure can be improved 5. More staff can be recruited	1. The other hospitals like Fortis Malar is coming up 2. Competition is more 3. Population is increasing each year.

FINDINGS

The researcher has found the following:

- The highest Weightage of 3.10 for the perception of the quality of doctors and the lowest Weightage of 2.01 for the perception of the quality of technician in the emergency department.
- The highest Weightage of 3.46 for the various responses from the ambulance services is the patient transfer and the lowest Weightage of 2.96 for the patient receiving.

CORRELATION

- The coefficient of correlation between the perception of doctors in the emergency department and the perception on the quality of doctors is of High positive correlation
- The coefficient of correlation between the perception of nurses in the emergency department and the perception on the quality of nurses is of High positive correlation
- The coefficient of correlation between the perception of technician in the emergency department and the perception on the quality of technician is of High positive correlation

CHI SQUARE

- There is significant association between the training programs and intervention given to the patients

RECOMMENDATION

- Promotion of emergency department shall be done in the highways so that the people are aware about the hospital facilities and it will increase the patient flow.
- A trauma way at the highway adjoining the entrance shall be set up for the early intervention.
- Reception area shall be modified to control the traffic flow of patients and attenders in the emergency department
- The emergency department shall have enough office space for doctors, nurses and administrative officers.
- Emergency department shall increase the recruitment for the nurses and the secretaries.
- Training programs like (CME, CNE, Skills Training) shall be conducted once in 3 months to educate the staff.
- The emergency department shall have more lifesaving equipments to handle all kind of emergency
- The staff who handles the patient transfer shall be trained to give the appropriate care.
- Emergency department shall be stocked with more lifesaving drugs and consumables so that patient doesn't wait in the pharmacy queue.

CONCLUSION

An emergency department (ED), which is also known as accident or trauma is a medical treatment facility specializing in acute care of patients who present without prior appointment, either by their own means or by ambulance. The emergency department is found in a hospital or other primary care center.

Due to the spontaneous nature of patient attendance, the department must provide its early treatment for a broad spectrum of illnesses and injuries, some of which may be life-threatening and require immediate attention.

From this study it's understood that there is the need to set up trauma bay at the highway/ adjoining the entrance

It's understood that the emergency department has clean and dirty utility areas and the emergency department has proper ventilation

From this study it's understood that there is not enough office space for doctors, nurses & administrative/secretarial staffs

Further study can be extended with larger population and the research can be carried out in-depth.

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